

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2015/2016

TCS2251 – COMPUTER SECURITY
(All Sections / Groups)

3 JUNE 2016
3.00 PM – 5.00 PM
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 5 pages (including cover page) with 7 Questions only.
2. Attempt **SIX** out of **SEVEN** questions. The distribution of the marks for each question is given. This paper carries **60 marks**.
3. Please print all your answers in the Answer Booklet provided.

Question 1 (10 Marks)

- a) Define the “Principle of Weakest Link”.
[2 marks]
- b) There are many defense mechanisms which can be used as a control to protect a vulnerability from a threat. One of these defense mechanisms is to “deflect” an attacker. How can this be done?
[2 marks]
- c) Inadvertent is a fancy word for not deliberate or unintentional. Briefly describe FOUR (4) Inadvertent Flaws in a program.
[4 marks]
- d) What happens when an unsuspecting user launches a Trojan Horse program?
[2 marks]

[TOTAL = 2 + 2 + 4 + 2 = 10]

Question 2 (10 Marks)

- a) Decrypt the following sentence using Caesar cipher where $P_i = C_i - 7$.

“P DPSS WHZZ AOPZ LEHT DPAO MSFPUN JVSVMZ”

In your answer, copy the following table to show how you did your decryption.

[illegible]

[6 marks]

- b) Briefly illustrate how the Key Distribution Centre (KDC) distributes the session key to Alice and Bob.[4 marks]

[TOTAL = 6 + 4 = 10]

Question 3 (10 Marks)

- a) Briefly explain the process of relocation in the memory of an operating system.
[2 marks]
- b) With the aid of a diagram, illustrate how base registers and bound registers are used in an operating system user program and data space in the memory.
[5 marks]
- c) Suggest THREE(3) ways you can improve the normal password authentication process aside from choosing a good password.
[3 marks]

[TOTAL = 2 + 5 + 3 = 10]

Question 4 (10 Marks)

- a) Give FOUR(4) functions of an antivirus.
(4 marks)
- b) List and explain TWO(2) ways a DBMS solves the problems of inconsistent data states during access.
(4 marks)
- c) Do you think a database administrator should be allowed to modify the change logs? Justify your answer.
(2 marks)

[TOTAL = 4 + 4 + 2 = 10]

Continued ...

Question 5 (10 Marks)

- a) Explain why a high-level user should not be able to write a lower-level data element in databases. Give an example to justify your answer. (4 marks)
- b) Give TWO(2) common threats in networking applications. Provide an example for each of them. (4 marks)
- c) Do you agree that TCP is better than UDP in protecting data integrity? Justify your answer. (2 marks)

[TOTAL = 4 + 4 + 2 = 10]

Question 6 (10 Marks)

- a) Decide if link encryption or end-to-end encryption is a better choice if you have these requirements: low cost, encryption is applied only when needed. Justify your answer. (3 marks)
- b) List ONE(1) advantage and ONE (1) disadvantage of Network-Based IDS and Host-Based IDS. (4 marks)
- c) Name any THREE(3) issues which can be addressed by security plan. (3 marks)

[TOTAL = 3 + 4 + 3 = 10]

Question 7 (10 Marks)

- a) Janice coded a user authentication program which combines the fingerprint and facial biometrics for banking system. The program is based on the algorithm designed by Janice which securely integrate the two biometric types. Janice is worried that the program and algorithm can be illegally reproduced by others and she is registering a trade secret for her program and algorithm. Does Janice take the correct action to protect her inventions? Justify your answer. (5 marks)
- b) Simon purchased a new intrusion detection system for his company which cost RM10,000 for licensing with maintenance fees of \$5,000 per year. Assume an inflation rate of 10% and a two-year time horizon, calculate the Net Present Value of the costs for the intrusion detection system. (4 marks)
- c) What is Returns on Investment (ROI)? (1 mark)

[TOTAL = 5 + 4 + 1 = 10]

END OF EXAM PAPER